THE OPTICAL MAGIC LANTERN JOURNAL AND PHOTOGRAPHIC ENLARGER.

EDITED BY J. HAY TAYLOR.

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Notices.

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NOTICE.

MANY CORRESPONDENTS STILL FORWARD THEIR COMMUNICATIONS TO THE OLD ADDRESS. WILL THEY PLEASE NOTE THAT OUR ADDRESS IS

56 CHANCERY LANE, LONDON, W.C.

Notes.

AT a Special General Meeting of the members of the Lantern Society, the subject of a uniform annual subscription for both country and town members was discussed, and it was decided that in future the subscription be 10s. per annum. At present, a new lantern is being built, to which will, from time to time, be added, as funds permit, various scientific attachments. The coming session of this society, which meets at 20, Hanover Square, promises to be one of great interest; those of our readers who are desirous of joining should lose no time in placing themselves in communication with the Hon. Sec., Com. C. E. Gladstone, 13, Arlington Street, London, S.W.

* * *

THE latest development is a Photographic Society, in which members pay a fixed sum (6d.) weekly. As soon as £5 is collected, a ballot is held, and the successful member is enabled to purchase photo apparatus "*at ordinary cash discount prices*," to this amount. If this method spreads over the country, membership of a photographic club will convey a meaning somewhat different to what it at present does, and photographic and camera clubs, like watch clubs and portrait clubs, may perhaps be classed as of the same ilk.

* * *

THE Band of Hope Union, which makes a special feature of using and dealing in the lantern, have acquired new premises at 60, Old Bailey, E.C., they having outgrown the old offices at 4, Ludgate Hill. The new premises are fitted with all necessary appliances.

Mr. E. Ireland, of 25, Lower Mosely Street, Manchester, has constructed a new studio, which he allows amateurs to have the use of for a shilling per half hour; two half-plates and developer being supplied free for use in the studio.

* * *

Those of our readers wishing to take up shares in the Central Photo Club Company, Limited, should communicate with Mr. C. H. Oakden, 51, Melbourne Grove, East Dulwich. It is the intention to issue 200 shares of £5 each. £2 10s. on application and the balance at 21 days' call.

* * *

The Lantern Stereoscope, described in our journals of August and September, 1892, will be issued to the public this coming season. During its recent exhibition at the Royal Society, this instrument was highly and favourably commented upon.

* * *

A new and ingenious method of adjusting and centering lantern jets is to be introduced by Messrs. J. H. Steward, this coming season. We hope shortly to give a description of this apparatus, which is the invention of Mr. J. H. Barton, of Manchester.

* * *

Those who use the *Optimus* lenses of Messrs. Perkin, Son and Rayment, have an opportunity of winning some handsome prizes. This firm have, lately inaugurated a 100-guinea competition. The prizes are divided into nine classes—Landscape, Seascape, Figures, Portraiture, Instantaneous Views, Architecture, Enlargements, Stereoscopic Views and Lantern Slides. All prints and entry forms must be sent to the firm mentioned by December 31st, 1893.

* * *

The Worshipful Company of Spectacle Makers have erected a stand at the National Workmen's Exhibition, Agricultural Hall, N., and intend offering three prizes of five, three, and two guineas, for the best exhibits in connection with spectacles, by British workmen.

* * *

Cadett and Neall, in June "Dry Plates," remark—"In accordance with the promise made in the last number of our magazine, we have made a series of experiments to determine the alteration in speed due to using our developing formulæ instead of the standard formula for speed testing. The result is that the speed numbers should be multiplied by two with our developer at 65° F. It may be asked why we do not give speed numbers with our own developer. This would not leave our numbers comparable with those of other makers using the Hurter and Driffield system, we therefore use the formula up to the present used by two makers for this testing purpose. Our Minimum Lightning Speed is now fixed at 80° H. & D. = 160° if our developers are used."

* * *

The wedding of Mr. Snowden Ward (*Practical Photographer*) and Miss Weed-Barnes (*American Amateur Photographer*), is to take place at Albany, N.Y., U.S.A., on 15th inst. Mr. Ward leaves Liverpool to-day by the S.S. "Alaska," with the best wishes of a host of friends.

—:o:—

Limelight for Portraiture.

Most people who take part in *tableaux vivants*, or fancy dress balls, are desirous of having their portraits taken when dressed "in all their war paint," but for them to proceed, say the following day, to a photo studio, and to dress or undress as the case may be in order to have their portraits taken by daylight deters many from troubling further about the matter, thus causing photographers to lose business which might have been obtained under different circumstances. Mr. C. Goodwin Norton lately gave a paper and demonstration before the Brixton Camera Club, to show by what means the photographer could add to his business and income by being on the spot with a portable apparatus which would supply the necessary illumination whereby the subject could be photographed—say between dances, &c., on the evening of festivity.

Mr. Norton had from experience found the flash light unsatisfactory in many respects, and had known it to be forbidden at certain private houses, because the smoke was liable to injure the furniture. The electric light when properly controlled was the best, but unfortunately the electric current is not universally laid on. He asserted that the limelight was particularly adapted for this purpose, as it could be quickly rigged up, gave off no smoke, and little heat, it did not startle the sitter, and could be worked at small cost.

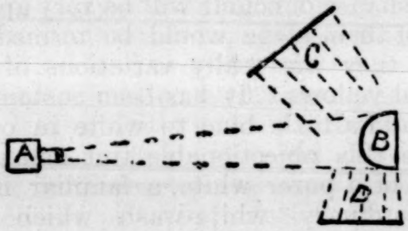
By using a system of condensers he said that the shadows cast were hard, and that no method of counter reflectors would balance them. A good arrangement was to have nine blow through jets either in a row or in a cluster (*à la* skittles). Mixed jets had been tried, but it was found that they did not give such good effects as the blow-through, the latter giving a more diffused light over a large surface.

An apparatus which was very satisfactory was an adaptation of the tray stem and jet arrangement of the ordinary limelight lantern. Care should be taken that the supply tubes be sufficiently large, and that if a regulator is used on the oxygen bottle, it must be set to a pressure sufficiently high to supply the whole of the burners.

If, in the room where the portraits are to be taken there is no house gas attachment, then must a cylinder of hydrogen be at hand.

When lighting up, the same precautions as to warming the lime, &c., must be taken as in lantern work. As the naked light would cast abrupt shadows, it is necessary to temper it by the interposition of a sheet of tracing paper or cloth, and the jets should be enclosed in some way so as to keep the lighting more under control. A box of about 2 ft. 6 in. each way, and covered with calico, which has been soaked in tungstate of soda, will answer admirably.

With reference to the relative positions of the sitter and the light, the following diagram, it was pointed out, would make the matter clear, A camera, B sitter, C light, D reflector.



The light should be placed about 4 ft. distant, and about 6 ft. from the floor, provision being also made for raising or lowering the illuminant by means of a rope and pulley. An ordinary lantern screen stand will answer for a support. However, given the light with means of adjusting, an artist will be able to make the most of it.

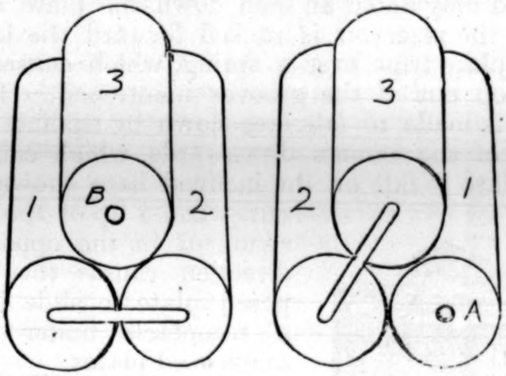
A suitable apparatus, it was explained, need not exceed five pounds in cost. With a rapid plate, averaging the exposures at 8 to 12 seconds, 40 feet of oxygen should suffice for fifty sittings.

When a series of portraits are to be taken, the light may be kept burning, but if there is not constant work the oxygen can be turned off, and the hydrogen lowered when the apparatus will be ready for use at any moment.

—:o:—

Saturators (Luckett's).

Mr. E. Luckett, the organising agent of the Surrey Band of Hope, sends us particulars of a saturator he has been in the habit of using almost every second day. It has three brass tubes 12 in. long, and 2 in. in diameter, each packed with flannel, the tubes are connected in the style shown, so that the oxygen has to travel through 3 feet of material charged with benzoline. The inlet is at A on tube No. 1, whilst at the one end tubes 1 and 2 are connected, and at the other end 2 and 3 are similarly connected, so that when the gas comes out of B 3, it has travelled through each stuffed tube.



The method of heating has already been described in our issue of September 1892. Mr. Luckett states that he has used this particular apparatus for several years, and considers it quite safe. It has been ascertained that only one-half of the oxygen necessary for a blow-through jet is required for this apparatus with mixed jet, and that the light is vastly superior.

—:o:—

Hand-Cameras for obtaining Slides for the Lantern.

	"Facile"	March 1st, '90
No. 1	"Giah"	May 1st, ,,
,, 2	"Quadrant"	June 1st, ,,
,, 3	"Eclipse"	July 1st, ,,
,, 4	"Eureka"	Aug. 1st, ,,
,, 5	"Key"	Sept. 1st, ,,
,, 6	"Optimus"	Oct. 1st, ,,
,, 7	"The Griffin"	Nov. 1st, ,,
,, 8	"The Swinden"	Dec. 1st, ,,
,, 9	"Collins"	Feb. 1st, '91
,, 10	"Kodak"	Mar. 1st, ,,
,, 11	"Guinca"	April 1st, ,,
,, 12	"Vanneck"	May 1st, ,,
,, 13	"Chadwick"	June 1st, ,,
,, 14	"Bonanza"	July 1st, '91
No. 15	"Repeater"	Aug. 1st, '91
,, 16	"Marvel"	Sept. 1st, ,,
,, 17	"Talmer"	Oct. 1st, ,,
,, 18	"The Omnigraph"	Nov. 1st, ,,
,, 19	"Ubique"	May 1st, '92
,, 20	"Daylight Kodak"	June 1st, ,,
,, 21	"The Radial"	July 1st, ,,
,, 22	"The Surprise"	Aug. 1st, ,,
,, 23	"Perfect"	Sept. 1st, ,,
,, 24	"Frena"	Oct. 1st, ,,
,, 25	"Meteor"	May 1st, '93
,, 26	"Archer"	June 1st, ,,

—:o:—

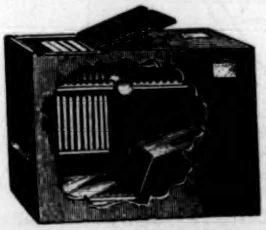
Hand Cameras, &c.

No. 27. "Uno."

There appears at present to be a run on hand-cameras costing about a dozen shillings or so, and, as is usual, a supply is produced to satisfy the demand. One cannot, of course, expect a 12s. camera to be as good in all respects as one costing a few pounds, but some of the former upon the market at the present time are wonderful at the price.

The Uno Camera Company, 46, Southampton-buildings, W.C., have introduced a magazine camera termed the "Uno;" they are made at various prices, according to the workmanship, but the principle in each is the same.

We have received one of the cheaper grades, the working of which is as follows:—Twelve quarter plates are placed in sheaths, which are then inserted in grooves in the camera by opening a lid or door at the top. The grooves extend only about an inch down the plate, and when the reservoir is racked forward the foremost plate trips over a spring, which causes it to drop out of the grooves mentioned. This plate is made to fall face down by tipping the front of the camera downwards, which causes the plate to fall on the inclined base shown in cut, when a tip of the instrument in the opposite direction causes the exposed plate to slide into a receptacle under the unexposed plates.



With the camera first sent to us we found the placing of the plate at the focal plane was largely a matter of chance, but since calling the attention of the makers to this, they now fit each camera with means for ascertaining this by a notched wheel and pointer. The achromatic lens is provided with a shutter (time or instantaneous), which is always set, and which is operated by cords. Two finders and a level are provided, and also a small dial figured from 1 to 12 upon which the number of plates exposed can be registered by pushing the index forward each time an exposure is made.

—:o:—

On the Preparation of Lantern Screens.

By Hy. White.

Perhaps nothing is more important in securing a brilliant effect in a lantern exhibition than the quality of the surface on which the picture is projected, and the ordinary sheet falls far short of perfection in this respect.

If we desire the finest and most perfect rendering of the slides, it is of the utmost consequence that the preparation of the screen should be most scrupulously attended to, and, moreover, when made, carefully protected from injury. A screen will either improve or mar the skill of the best lanternist who may be working with the most unexceptionable apparatus and light to be procured. It is therefore an absolute necessity for the best results to have the screen as white, solid, smooth, and free from defects as possible.

Many screens are quite inadequate to show up the delicate qualities of a perfect slide even with a brilliant light, consisting as they do of merely a white (*sic*) calico sheet attached to a frame, which, more often than not, in addition to its bad colour, is embellished with creases, joins, and I may add dirty marks, having anything but an artistic effect, especially where each defects show in the skies and lighter portions of the projected picture. The acme of perfection in a lantern screen is, that it shall possess a fair smooth surface, unbroken by any seams, stains, or defects whatever, and be of an absolutely dead opaque white when seen by artificial light. As all oil lights are more or less tinged with yellow, and that yellowness is communicated to the screen, to the detriment of the picture, its surface should be of a tint calculated to neutralise the yellowness and make it appear of a pure white.

To any observant person the term white is but a comparative expression, and very few whites so-called are absolutely colourless, this is easily proved in a simple manner by laying a number of pieces of so-colled white paper of different makes in juxtaposition, when their different shades of colour will be very apparent. Anyone of them alone would be termed white, although they are really variations of blues, pinks, and yellows. It has been customary for years to add a little blue to white in order to neutralise this objectionable tint and produce the effect of a purer white, a familiar instance is the ordinary white-wash which almost invariably has a little blue added to it for it has been found that a faint blue has a more fresh and clean appearance than natural yellow tinge of whiting. Albumenized papers are tinted with the same idea, any yellowness being less perceptible in the tinted paper than in the plain untinted. So in the preparation of the lantern screen the white should have a distinct tinge of blue by daylight which will be found to produce purer lights in the pictures thrown upon it than any other tint, and in this respect be as near perfection as we are ever likely to get.

Next to colour opacity has to be taken into consideration, a surface that will reflect most of the light in the same condition in which it is received without any perceptible degradation of tint, is the kind for our lantern screens possessing which are calculated to give thorough satisfaction to the most exacting critic.

In a retrospective view of the lantern shows we have seen how few slides have been really shown to the best advantage from little else than the imperfect surface on which they were projected. We are so accustomed to see make shifts and imperfect backgrounds that we perhaps note the defect in a perfunctory sort of fashion and think we make a sufficient mental allowance for it, as a thing that could not be avoided, and content ourselves by fancying the picture as it should appear if it was more perfectly shown without feeling dissatisfied as we undoubtedly should had it been customary to pay a scrupulous attention to this part of the exhibition. A photograph in any other form is rejected as imperfect, if it has a spot or blemish on it, and yet the enlarged picture is passed with a dozen or more imperfections, although infinitely greater eyesores if possible than when they occur in pictures of less important size. Blemishes on the slides themselves are much too frequent, surely it is needless to add to them by faulty screens. If bad and dirty pictures were as rigidly excluded from our lantern shows as from good exhibitions of other pictures of it would be a considerable advantage all round, and then probably the screens would be as well looked after as the pictures.

Now a word or two about making the screens. Where it is possible, the best foundation for a screen is a solid wall very smoothly cemented and painted in flatted colour; it may be said the impossibility of altering the angle of such a screen would militate much against its usefulness; but, as with a wall so prepared, the probability is that there would be no necessity for alteration, the lantern could be fixed truly with regard to its surface. Even if it did slightly interfere with rectilinearity the superior brilliance and solidity of pictures projected on such surfaces will make amends for any trifling short coming in other directions.

Suppose we have such a surface ready to hand, it may either be whitened with oil flatted paint to which a little blue has been added, or by a very fine quality of white-wash tinted a very pale blue with smalts, or ultamarine, and a little size, the whole carefully strained through coarse flannel. With a good brush that has seen some service, begin at one top corner and cover the space diagonally about a yard in width at a time before equalising it with a good dabber, alternately painting and dabbing till the whole surface is evenly covered. It is as well to damp the wall over with plain water before begining to whiten, if the distemper plan is selected; of course if oil colour is chosen the wall must undergo a preliminary sizing and receive several coats of paint, only the final one of which it is necessary to be scrupulously particular about; this final coat must be just tinged with blue and flatted in the usual manner.

In the preparation of a flexible or roll up screen a somewhat similar process is adopted. In the first place, procure some fine sheeting the full width of the screen, if possible; if the size of screen is too great for one width, let the joins be horizontal and not vertical, then any objectionable ridge in the sky of a landscape will be avoided, or much less conspicuous than if joined vertically and becoming an eyesore.

The material being provided it must be tacked on to a stretcher, very much after the plan of an artists canvas. Rear up the frame against the wall, and begin by tacking the sheeting on to the top edge, the tacks about three inches apart. *See that it hangs level,* then fasten one side, putting a slight strain on the material at every tack, pulling downwards from the fastened top edge, then go to the other side and do likewise, finally tack on the lower edge and see that the surface is free from wrinkles and puckers from unequal strain. If it is found that the nails are not *quite* right, do not hesitate to draw them out and tack again until a perfectly tight even surface is obtained. Now moisten it equally all over with plain water and let it dry, and the foundation is prepared for further working, upon which we begin to do by brushing it over with a thin solution of size and letting it again dry.

The colouring is now made of fine whiting and blue, size, and about a quarter of a pound of yellow soap to the gallon of liquid white, which when well mixed should be the consistency of thickish cream and of a decidedly blue tint. To ascertain the proper amount of blue brush a little color on some smooth surface and let it dry, it will then be seen if too much or too little blue has been added, and the alteration can be made accordingly. Its application is as directed for the wall, beginning at the top corner and working diagonally, softening off as the colouring progresses, until the whole is evenly worked. When dry, the upper and lower rows of tacks are withdrawn, leaving the sides attached until the top has been retacked to a stout lath and the lower end to a fairly heavy roller of sufficient length for the ends to project on each side about six inches beyond the screen, a sharp knife may now be run down the sides and the sheeting cut cleanly through and off the stretcher, roll it up face outwards and it is ready to be fixed in the usual manner of photographic backgrounds. It is a self-evident fact that a screen rolled and folded up anyhow together for travelling from place to place must get creased and soiled with the usual small amount of care it is likely to receive, I set my face entirely against the use of such screens, and hold that if a lantern slide is worth showing at all it demands as faultless a surface as a print would a mount, or rather paper on which it is made.

Here that bugbear of photography, portability, steps in, allowing that a screen on a roller may be somewhat more troublesome to move about, it need not be *very* much so, and if protected by a long, light case, would be superior in every way to the best unprepared white sheeting that ever was made.

There is still another kind of lantern screen for showing the slides by transmitted light, and when only a small-sized image is required, nothing excels it for brilliancy of effect; there is no loss of light by absorption as with a reflected picture, it is practically the same as viewing the image on the focussing screen of our cameras. We really look at the light with nothing but the screen receiving the image to intervene, wonderfully enhancing the brightness of the picture. Good tracing paper stretched on a frame answers well, its only drawback is the facility with which it is damaged. White paraffin paper attached to very fine muslin with transparent varnish is very good, the chief difficulty lies in joining up the edges of the sheets of paraffin paper so that they touch without overlapping, any overlay will of course make an opaque line detrimental to the effect, but the increased intensity of the illumination will render a mark of this kind less obvious than defects occurring on an opaque screen. Lanternists often use an ordinary wetted sheet for the display of slides by transmitted light, and the unevenness of texture is not very pronounced, but the effect is far inferior to tracing paper or similar materials. In my opinion nothing can exceed the beauty and delicacy of a good picture transmitted through such media.

The usual lantern screen so very much in evidence is nothing but a plain white (*sic*) sheet tied by tapes or hooked to a frame, which more often than not, in addition to its colour, is embellished with creases and puckers starting from the ties or fastenings, making ugly ridges for some distance into the field of illumination. It is true that screens *may* be fixed without, I merely mention this as a common defect from the carelessness or want of knowledge of those who fit them up.

Providing time will permit after tieing up such a sheet, it may be temporarily improved by brushing it over with a coat of thin good whitewash tinted blue, as already described, mixed with a little size just sufficient to keep it from being dusty. A dressing like this soon dries, tightens up the sheets, making it much better for the purpose of displaying pictures. Although the preparation of screens as described may seem rather troublesome, the very superior effects produced make it well worth the extra labour, and it is only by attention to all details, howsoever trifling, that our lantern shows will emerge from common place to be really artistic.

Oil and Lamps for the Lantern.—No. II.

By W. H. Harrison.

As it is, perhaps, scarcely realised by lantern users to what a large extent the quality of the wick governs the amount of paraffin oil supplied to the flame in a given time, it may be well to deal with that part of my subject more in detail. Whatever the wick, however, it must be made perfectly bone-dry before it is put into the lamp, for cotton is hygroscopic, and some wicks will, in time, take up from the air from four to six per cent. of their weight of water; this occurs, of course, before they have been saturated with paraffin oil. Mr. Herbert Morgan, of Manchester, once supplied Mr. Boverton Redwood, for his Society of Arts lectures, with a long report on the method of manufacture of the best wicks, and from this report the following items of information are condensed:—

Carefully selected American long-staple cotton is used, and the length of staple, to a great extent, governs the amount of capillary attraction; the cotton is then spun into what are known in the trade as "coarse counts," because fine thread will not "draw" the oil to anything like the same extent as coarse loose thread. In spinning, only sufficient twist is put into the yarn to enable it to pass through the succeeding processes, or its burning power will be lowered. After the raw cotton is thus made into the single yarn, it is doubled into the requisite number of folds, and care is taken to avoid undue twist; the folded yarns are next made into "warp." In the best wicks an important addition is made to the warp, by the introduction of what are known as "gut" threads. These threads run perfectly straight through the centre of the wick in the same direction as the warp threads, but are not crossed or interfered with in any way, and they can be drawn out from the wick without any difference being made in its external appearance. It is claimed as they pass direct from the oil to the wick they are an important auxiliary power in the matter of capillarity. The "weft" should be made of good quality single cotton, two or more fold; hard-twisted yarn is detrimental to the flow of oil. A good wick should only be of sufficient firmness to wind properly in the lamp; all beyond the required resisting power to the racks is detrimental to the action of the whole wick. After the best wicks leave the loom they are boiled to get rid of impurities, consisting of the natural oil in the cotton, and particles of dust and dirt. The use of chemicals in the boiling has, so far, been found to do more harm than good, and pure spring water has been found to answer best. The wick is next thoroughly rinsed in clean, cold water, then it is put into a water extractor, and afterwards kept at a temperature of about 130° F. until it is perfectly dry.

Mr. Boverton Redwood experimented on the relative quantities of oil of good quality, drawn by capillarity through wicks of the same width in a given time, with the following results.:—

Wick of best quality	198
Wick of medium quality	100
Wick of inferior quality	76

Selecting oils which did not flow very freely under the influence of capillary attraction, Mr. Redwood, in comparative experiments, obtained the following results:—

	Wick of best quality.	Wick of ordinary quality.	
Maximum illuminating power	10.43	9.99	Standard candles.
Minimum illuminating power after six hours burning	9.63	7.64	
Average illuminating power during six hours burning	10.14	8.99	
Dimunition in illuminating power, per cent.	7.6	23.5	Grains.
Oil consumed per hour	5.29	5.00	
Oil consumed per candle light, per hour	52.17	55.61	

After use for some time, the wicks appear to be choked, but Mr. Redwood found that the deterioration in this respect was much less with good wicks than with those of inferior quality. Calling the maximum illuminating power of each wick, when new, 100, the maximum illuminating power of a best quality wick, after it had been used for a total of 32½ hours, on five successive days, was about the same as at first, but the illumination of the ordinary quality of the wick had, under the same conditions, fallen to 17·8. After a good quality wick had been used for a total of 50 hours, on seven successive days, its illuminating power had but fallen to 93·8.

I feel inclined to doubt that no improvement can be made in the capillary action of a wick in relation to petroleum, by chemical treatment. The "medicated cotton wool," well-known to pharmaceutical chemists, which, when dropped into water absorbs it and sinks to the bottom at once, is made by removing the natural hydrocarbons which varnish the cullulose fibres, and is effected by chemical means. Ordinary cotton-wool resists such rapid capillary action, and floats for a comparatively long time before it sinks in water. Petroleum, being anything but an aqueous liquid in its nature, may act differently to water under the circumstances, but there might be no harm in making some of the chemically cleansed cotton wool bone-dry first, and afterwards trying whether it will sink in petroleum more rapidly than ordinary cotton wool, all other conditions being the same. Any trace of dampness, in either the one or the other, will interfere with the trustworthiness of this experiment.

(*To be continued.*)

:o:

Memo from my Note Book.

LANTERNS AT EXHIBITION OF 1851.

By RICHARD EMPSON.

IN this Journal for September, 1892, I gave some particulars respecting lanterns at the 1851 Exhibition. I have now pleasure in submitting some further memo's from my note book upon Beechey's lantern. This lantern is one that might well be used at the present day. It was known as Beechey's Dioptric and Trinoptric Lantern.

This lantern consists essentially of a square metal box, into three sides of which are fixed the tubes containing the lenses, and to the two side-tubes are affixed mirrors, which are capable of adjustment to any angle.

It will be easily understood that by these means we may have either three distinct pictures on the screen at one and the same time, or that they may be easily made to blend, or pass one into the other, thus affording means by which a series of "dissolving views" may be produced without any of the annoyances which arise from the use of two or more lanterns.

The imperfection in the Trinoptric Lantern, as above described, lay in the use of reflectors, from which there was considerable loss of light in the side tubes; and although with the oxygen and limelight invented by Mr. Beechey (now Canon Beechey), the pictures were clear and good in a 20ft. disc, yet it was advisable to choose the lightest pictures for the sides, reserving the darker ones for the front.

The double surface of glass mirrors also prevented that sharpness and clearness of detail which it is desirable to preserve. The use of prisms instead of mirrors was suggested; but the narrow limits under which the reflection from prisms is confined, rendered it very difficult to get even two perfect discs to be coincident with any high power. This will be apparent when the conditions of perfect reflection from prisms is considered. The reflection obtained at the current angle is the most perfect possible, but it is only when the incident rays is less than 41° 51′ that reflection is perfect at any greater angle the light passes through. If, therefore, the back of a reflecting prism be inclined at the angle of 45° or 46°, which was necessary in the old trinoptric in order to obtain coincidence, it will be evident that part of the disc will be imperfect; and if, in order to remedy this, the back of the prism be inclined much further back, the disc will never agree with that from the front tube, and there is, moreover, the danger of some of the rays of the pencil missing at the back altogether, and so spoiling some of the disc.

Thus, the limits within which such a prism can be employed, are very narrow. The front and back of a circular box being firmly fixed to the top and bottom, but having the sides on which the other tubes are fastened, movable by a circular groove and tongue in the top and bottom, so that the two side tubes may be inclined to the front tube at any angle from 60° to 100°.

(*To be continued.*)

—:o:—

An Angel in Moleskin

(A SHORT STORY FOR LANTERN ILLUSTRATIONS),

By JACK O'LANTERN.

(*Continued from page* 90).

NEVER before do I remember, on a cold day, perspiring so freely, without exertion too. I was positively unnerved, and wiped my head repeatedly, thinking, or trying to think what was best to be done.

I thought of everything and everybody, but more especially of my bright-eyed, honest-looking fiend (10). It was clear the little machine I had set running had been snatched from somebody's pocket, with possibly a running accompaniment of blows. I remembered how he had fenced against giving his name,—the smooth-tongued scoundrel. I was too upset to look at the situation logically, and concluded I had been in company with a terrible villain.

What was to be done? Here was I in my halcyon days

(11) "And, being new-married at the time,
Life was rose-hued and charming."

just opening up, in my own estimation, a veritable gold mine, to make provision for a young wife, and others that *might* follow. I worried myself so much that I became quite ill. The remainder of the day passed without further concern, however; and occasionally a word of encouragement from the one or two who dropped in really cheered me up a bit.

I retired later than usual that night to seek that rest that only gentle sleep can give, and having somewhat recovered from my upset, considered bed was the only means of restoring the nerves.

(12). The next morning, Sunday, I was better, stronger, and fit to do battle in an emergency, and looked at things more rationally. Said I to myself, "Shall I set a trap for this family of varlets, capture them and so get them out of way? Should I watch for the smooth-tongued rascal, acquaint him of the evidence I had of his villainy? Oh, no, no! that would not do, being in such close proximity." I decided on leaning to the prudent side, which was to treat him respectfully, as it would never do to be at loggerheads with so dangerous an enemy.

(13) The day of idleness past, we were soon advanced in the following week. I had just returned from the city one evening, where I had been called on business, and found my wife pale with excitement, who informed me during my absence the man at the back had been in with a stringed instrument, which he wanted me to hold as security for the loan of a few shillings which he was anxious of raising. "Which of course you refused," said I. "Why, of course, dear, I hope I'm not such a simpleton as that would make me, but," she continued, "He was polite, and I was civil, asking him to come in again in a few minutes, when I expected you back, though I knew you could not get home for at least a couple of hours." 'Sorry I can't wait,' he said. 'The guv'nor did me a good turn last Saturday, and I just thought he might help me, and take care of my—tapping the case with his knuckles—'my pal,' for they're not too careful over yonder.' 'And he pointed to Gregson's, where I afterwards saw him go."

(14.) "Business little woman you are to be sure," I said, as I reached over to kiss her, and, by way of encouragement, I added, "I am assured there is nothing to fear, and that my place and property are safer with the surroundings as they are, than if a distance separated us from the people we fear."

So Christmastide came and went. The winter—that cold, pitiless, long, dreary winter, with its poverty, sickness, distress and anguish, passed slowly — slowly away, followed by a spring not much better, improvement came so slowly. At last June "had rolled round with her roses," and gone. July followed in the wake, with her tiger lilies, and had nearly gone, when on my return to the shop one hot Saturday afternoon, my wife handed me, with two or three other little things, a silver watch to be cleaned. "You know all about it, dear, he showed it you some time ago." I recognised it at a glance, but kept my own council in the matter, for I did not wish to open an old wound if I could avoid it; I asked just casually what sort of man he was, for I knew she had seen my terror of the back, but it was evident she did not know him again by her reply. "Oh! a dirty, slovenly fellow, whose face was hidden by soot and muck." "Oh, and will you be sure to have it ready by this day week, dear, when he will call." I will, thought I to myself, and will pay particular notice to be here when he does call.

(16) That night, whilst sitting by the open window, waiting for me to come into supper, my wife suddenly came and called me, "Come quickly, and listen to the singing." I was in time to hear the refrain of a beautiful slumber song, played with sympathetic effect on a well-tuned instrument; and then slowly, but powerfully, the summer air was filled by a pure soprano voice—

"Hush-a-bye, birdie, the stars are on high,
Twinkling, twinkling, far up in the sky;
Over the city, and over the town,
Over the meadows, the red copse and brown.
Go to sleep, darling, mamma is nigh?
Watching her birdie, hush-a-bye bye.
Hush-a-bye, birdie! Hush-a-bye, bye."

(17) Standing at my door, at the near close of another week's business, I was saluted by my friend in blue, XL 310, accompanied by a comrade:—

"Weather keeps fine, sir," he said. "Most enjoyable," I replied, "I wish trade was as encouraging." "Did you hear anything of the row Friday morning? Not row exactly, but we'd a warrant for Alf Jawkins, so took him from his bed. His brother tried to slum him, but soon found resistance useless, and if my opinion goes for anything, this'll be a seven years' job for him."

(18.) At that moment my attention was directed to a man dressed in moleskin clothes, descending the hill to our right. That face, though disguised with dirt, I knew to be no other than my terror at the back,—and now 's my chance I thought, and addressing my friend XL310, I said, "Which of the Jawkins' boys is this coming down?" "God bless you, sir," he said, "that's Fred Angel." (Angel of darkness, I thought) "A man," he went on, "who would no more think of doing wrong, than Jawkins would think of doing right. You don't mean to say, sir, you're not familiar with Fred? True, his wall butts yours, so does Jawkins's, so does Tilson's; Fred's house is between the other two, or, as we say, 'the heaven between the hells.'" "Good evening, Fred!" "Good evening, gentlemen!" returned my hero; and who, by this time, had reached the doorway.

(*To be concluded in our next.*)

Editorial Table.

Metol-Andresen.—Messrs. A. Schwarz, of Dashwood House, Old Broad Street, E.C., supply metol cartridges which will be found to be a good agency for developing. The instructions are to dissolve the contents of the cartridge in 7 oz. of water. For over-exposure a few drops of a solution of bromide potassium may be added, and for under-exposure add more water and a few drops of a solution of potash. This developer does not stain, and the same solution can be used repeatedly. A developer of the same constituents as the cartridge may be made as follows:—In one quart of distilled water dissolve first ¾ oz. of metol and then successively 7 oz. of sulphite of soda (crystals), 3½ oz. of carbonate of potash and $\frac{1}{10}$ oz. of bromide of potassium. For developing gelatine dry plates this solution, which keeps well, may generally be diluted with three or four parts of water.

Metol-Hauff.—From Messrs. Fuerst Bros., 17, Philpot Lane, E.C., we have received several boxes, each containing 35 grs. of metol-hauff. To make the developer the contents of one box must be dissolved in 8 oz. water and ¾ oz. sulphite of soda added. This solution may be termed A. In another vessel ¾ oz. carbonate of potash is dissolved in 8 oz. water and termed B. A good developer for landscapes is formed by about 4 pints of A to 1 of B, to which is added about the same bulk of water. Metol is a very clear developer to work with, and those who have not tried it will do well to do so.

Slide Printing Frame.—From Mr. C. S. Scott, of Walthamstow, we have received a couple of frames for printing lantern slides from ¼ and ½ plate negative. In these frames the negative is placed in a brass frame, which can, by means of lugs attached, be moved, so that any desired portion of the negative can be printed from by contact. Carriers to take other sizes of negatives are fitted to the large frame. The frames are neatly and substantially made, and will be appreciated by makers of lantern slides.

Damp Sheet Detector.—Those who travel will find the above, introduced by Mr. A. H. Baird, 15, Lothian Street, Edinburgh, very useful. We have received a box of prepared paper with the following instructions:—"Lift a piece of the paper by a corner out of the box, and place it between the sheets. Press the bedding gently down while you count five seconds. Then examine the paper. If the sheets are slightly damp, the paper will be stained a dark red colour. If the sheets are well aired and dry, the paper will be hardly discoloured, if at all. No fear of damp need be felt unless the paper has assumed a decided brick red, as these papers are exceedingly sensitive to moisture."

Amateur Photographers' Annual.—This Annual for 1893 has just been published. It contains an interesting description of holiday and other resorts, full particulars respecting carbon printing, many valuable hints regarding practical photographic work, and over a dozen of fine illustrations, mostly collotypes. This volume, which is also handsomely bound, should find a place in the library of those interested in photography. It is published by Hazell, Watson and Viney, Limited, at 12s., cloth bound.

Catalogues.—G. W. Wilson & Co., Limited, the well-known photo publishers of Aberdeen, have issued a list of their new sets of slides. Each page contains one or more high-class illustrations illustrative of the various sets, among which we observe lists of English, Scotch, and Spanish scenery; domestic and wild animals. A set of Australian views is in course of preparation.

It is sixteen years since the firm of W. Banks and Co. was established at Bolton. Since 1877 their business has been increasing, and in their catalogue just to hand we find illustrations of cameras of every description, including their own make, and also those for which they are agents. Lenses, shutters, lamps, and all photo. sundries are also to be found in this catalogue. The appendix, "How to choose and use a photographic outfit," contains much useful information.

—:o:—

Correspondence.

SUCCESS AND NON-SUCCESS OF LANTERN EXHIBITIONS.

[*To the Editor.*]

Sir,—Few will agree with Mr. Wilkinson's assertion that public exhibitions were killed, as far as paying goes, by the advent of cheap photo-slides. Quite the contrary; for every exhibition that took place in the "good old days," at least a dozen are now held. It may be true that every one is not a success, but whose fault is that? Some people imagine that if they buy (at the cheapest possible price) either a new or second-hand bi-unial lantern, hire a set of slides, read the lecture without rehearsal, and chance as to whether the pictures are placed on the screen properly, introduce a little music by an amateur, and they think success is bound to follow. The reverse is the case. The public want something else, and so they did in the "good old day."

I visited the Polytechnic in 1865, 1870 and 1876, and each time there were other attractions—diving bell, electrical machines, conjuring, animated statuary, and many other things all to be seen for the shilling charged for admission, and it is very doubtful, had they had dissolving views only, whether it would have paid better than some persons can make them pay now.

It may be safely stated that had we no cheap photo-slides we should have few lanternists at the present time. The general run of hand-painted slides being from every point of view, except the painters, inferior to plain photographs; and as for art being degraded by photography, such can only be entertained by faddists.

A great cause for the success of the lantern at the Polytechnic, in contradistinction to modern exhibitions, was that there was then no opposition, and entertainments of other kinds were few and unattractive; but even with all this the proprietors could not make both ends meet without the diving-bell, conjuring, &c..

To make a lantern entertainment a success financially—I mean where the pictures and not the lecturer are the attraction—one must have among other things, a bi-unial or (better still) a triple, properly registered, long focus lenses, nicely coloured and plain slides, several effects, and an efficient operator. It is a melancholy fact that at about one half of the exhibitions some hitch occurs, either from badly constructed apparatus or want of skill on the part of the operator.—Yours,

C. GOODWIN NORTON.

Marchmont Street, W.C.

OXYGEN FROM CYLINDER, AND HYDROGEN FROM MAIN, WITH MIXED JET.

[*To the Editor.*]

Sir,—In the March number of the Optical Magic Lantern Journal appears a letter signed A. B. Spawforth, broaching a theory concerning the use of oxygen from cylinder, and gas from main, with a mixed jet. In the May number, a Mr. Horace Hilton, limelight expert, condemns Mr. Spawforth's theory in very unmeasured, not to say contemptuous terms. Now I cannot claim to have had experience enough in lime-light matters to justify calling myself a limelight expert, though having a considerable acquaintance with compressed gases, as, for instance, liquid carbonic acid. So, I for one, would be glad if Mr. Hilton would step down from his pedestal and condescend to explain where the absurdity lies in the statement that a cylinder, under normal conditions, meaning, I suppose, under ordinary atmospheric pressure, contains so many feet. I am supposing no regulator to be in use according to Mr. Spawforth's theory.

With regard to this theory I should like to point out what I consider the one fatal defect in it.

Under the conditions he mentions would not the pressure of the oxygen drive the gas from the main back till it reached any adjacent lighted gas burner, when an explosion would probably occur; setting aside the possibility of the mixed gases being fired by the flame at the lime-burner being sucked back. Whereas, in a cylinder of hydrogen the oxygen would simply compress the hydrogen till both pressures were equal.

I should be glad to be authoritatively informed if I am wrong. Apologising for thus troubling you,

I am, yours, etc.,

Pembroke Dock. H. G. WHITE.

ROYAL WEDDING ILLUMINATION.

[*To the Editor.*]

Sir,—It is not impossible that many of your readers intend to have some sort of display in front of their establishments on the Royal Wedding evening, an effective and at the same time inexpensive display can be obtained by the lantern as follows:—By coating large panes of glass or windows with tissue paper a suitable transparent screen will be formed, and by means of a lantern and suitable slides pictures can be projected from the back; this, if there is not too intense a light from the adjacent buildings, will give an excellent effect.

Rye, Essex. W. STOCKS.

[We understand that Messrs. York and Son have prepared slides of the Prince and Princess from the latest negatives, and that these may be obtained from all lantern dealers.—Ed.]

SLIDES FOR AUSTRALIA.

[*To the Editor.*]

Sir,—The Editor of the *Australian Photographic Journal*, on behalf of twelve photographic societies in Australia and New Zealand, is arranging a set of slides representative of the best workers in these colonies, and it is proposed to send them to this country for circulation amongst such British societies as may desire it. In return the colonials ask that we should make up a set of British slides, together with a brief lecture or notes concerning them. May I ask all those British societies that are interested in the matter to communicate with me as soon as possible, giving any suggestions that may occur to them, and stating what they will be prepared to do in the matter?

Yours faithfully,

H. SNOWDEN WARD.

Memorial Hall, E.C.

POPULAR LECTURE SETS.

(*To the Editor.*)

Sir,—I am a beginner with the lantern, and, like all others similarly placed, have difficulties to overcome. I have got my outfit excepting slides, and my difficulty is in knowing what to select that will please the average audience—adult as well as juvenile. I have some of the various makers' catalogues, but to me it is bewildering to attempt to make a selection, ignorant as I am of the public taste. I have got some very useful hints from your Journal, and I should be glad if some of your experienced readers could help me. I think that many also who are more advanced than I must be confronted with a similar difficulty. Is fifty slides reckoned sufficient for an evening's entertainment?—Yours faithfully,

BEGINNER.

WHO INVENTED DISSOLVING VIEWS?

[*To the Editor.*]

SIR,—Quite an interesting discussion has been going on of late, in this journal, respecting the above question, but up to now the matter does not appear to be settled; if ever it is to be, now is the time, for in a few years those who can throw any light upon it (and they are few) will have gone over to the majority, and in a few more years there will be plenty of rumours afloat as to the inventor, for it is surprising if one is at all prominent what wonderful yarns are told after their death.

So many items outside of the subject have been touched upon by your correspondents, that it becomes necessary to "boil them down." After carefully going over the correspondence the matter appears thus:—

In this journal for March, 1892 (page 29), Mr. G. R. Baker states that dissolving views were introduced by the late Mr. Childe in 1846; exactly one year later, Mr. W. H. Harrison, in an article, stated that one of Carpenters and Westley's slide painters claimed to have been the inventor of dissolving views. Mr. Harrison evidently being uncertain as to who should get the credit of the invention, asks the question, who invented dissolving views?

In the issue of April last, Mr. Wilkie asserts that the invention should be credited jointly to Messrs. Childe and Hill, the former gentleman being dead cannot throw any light upon the matter, but Mr. Hill, who was at first a pupil of, and afterwards a partner of Mr. Childe, endorses this assertion in May journal, and says that "Childe and Hill were the sold inventors and nobody else." In the same journal a party who evidently is somewhat in the know about these matters, but who unfortunately hides himself behind the *nom de plume* of "Suum Cuique," says that Childe and Hill were not the inventors, but that Mr. Childe himself was, and that the statement that Mr. Hill was a partner at the time of the invention is too ridiculous to contemplate. From the correspondence one learns that Mr. Hill was at one time a pupil of Mr. Childes. Now instances have been known of a pupil and his master working out ideas together and for the master taking *all* the credit; in fact, even in slide designing and painting, this is an everyday occurrence, but I do not say that in this case it was so.

Mr. S. Cuique says dissolving views were *evidently* (mark the evidently) invented before Mr. Hill was born, and he says dissolving views were exhibited at Norwich in 1839. If Mr. Suum Cuique is certain of his information I would ask him to come out from behind his *nom de plume* and also to submit for the editor's inspection the show-bills he speaks of having in his possession.

Mr. Green's letter does not throw much light upon the subject, but endeavours to show that Mr. Danquey should have some of the credit as he was thirty years in perfecting his apparatus.

I now come to June journal: Messrs. Wilkinson & Co. instead of speaking of the invention of dissolving, speak of its being killed by cheap colouring, &c. By reading between the lines they try to convey the idea that slides coloured by them are better than those by anyone else, and as for their statement that "Art is degraded by photography," well—I had better say nothing for "least said soonest mended."

A question is asked by Mr. Trevor which can be answered by yes or no, and it remains to be seen if the correspondent takes it up.

The old "*dissolving*" views of Mr. Childe, as explained by Mr. Wilkie, were not dissolving views as we understood them, but we are led to believe that it was only in 1846 that they were introduced jointly by Mr. Childe and Mr. Hill who were now in partnership. This gives the idea that Mr. Hill's suggestion introduced an improvement on a principle used by Mr. Childe, and dissolving views, as we have them, were introduced. Granted all this, it would thus appear that dissolving views as we understand them nowadays were introduced about 1846 by the firm of Childe & Hill, mainly owing to the suggestions of Mr. Hill, who having seen the old style of dissolving or fading off of the pictures of Mr. Childe, gave to the world what we now understand as dissolving views, but that this idea was the outcome of a method used many years previous by Mr. Childe.—Yours &c.

GEO. M. HOWARD.

[*To the Editor*].

SIR,—From the correspondence that has been going on in this journal, it appears that there are but two sides—those who wish to credit Mr. Childe with the invention, and those who wish to give the credit to someone else. With good cause I must side with the former class.

During his lifetime Mr. Childe acted as artist to the firm of which I am a member (E. G. Wood), and he and my family were on terms of personal friendship; and my cousin was a pupil of his, so I must be credited with knowing something about Mr. Childe.

Now at the time I speak of, Mr. Childe claimed the invention, and had on his business cards the following words:—"Inventor of Dissolving Views and Chromotropes."

In those days Mr. Childe used two lanterns, which he kept burning throughout the entertainment, and his dissolving effect was produced by inserting in the nozzle of one lantern and withdrawing from the other wooden plugs covered with cloth. When my cousin was his apprentice (pupils they are now termed), two of these cloth-balls used to be at the studio. At a subsequent period Mr. Childe used pieces of cardboard to effect the change of picture. During Mr. Childe's lifetime no one would have thought of disputing with him the right of claiming to be the inventor of dissolving views.

It is, without doubt, the fact that various persons have improved upon his primitive method, as witness serrated fans and tap dissolvers; but the person to get the credit of this invention is he who first produced the effect—if even in a crude style—and that person is the late Mr. Henry Langdon Childe, who was born in 1782, first publicly exhibited dissolving views in 1811, and died in 1874 at the ripe age of 92.

Yours truly,

A. A. WOOD.

74, Cheapside, E.C

[*To the Editor.*]

SIR,—The statement in the letter of "Wilkinson & Co." in your last issue, that the decline of the late Royal Polytechnic Institution was due to the employment of small lanterns in place of the large, is too ridiculous to detain us for a moment. As a matter of fact I can say most positively that the use of the large lanterns was never discontinued, and upon referring to my notes, and also to the programme for the last day upon which the proprietors kept it open to the public (September 10th 1881), I find that no less than sixty-one large views were exhibited. They were never abandoned at any time during the life of the Institution.

The story of the gradual decay of the Polytechnic would occupy many numbers of this *Journal* to the exclusion of all other matters, and I can only suppose that the distance which separates London and Sunderland has hitherto prevented the real facts of the case from reaching the ears of "Wilkinson & Co." Their statement that it is untrue that any one firm or artist produced even the majority of the slides (large size be it remembered) exhibited at the Polytechnic is just as unfounded as their first remark, as I am prepared to prove by actual figures, extracted from the stock list of the Institution. The following list gives the number of views painted for the Polytechnic, and represents the whole stock of large-size views and effects in the possession of the proprietors six months previous to the sale.

Some of the names, please note, are the names of firms and not of artists; these will no doubt be recognised:

Clare, 88
Doubell, 50
Perrin, 44
Smith, 38
Benwell, 10
Knott and Baldwin, 22
(These two names were coupled together in the Polytechnic books.)

Prout, 12
Winzar, 2
Staunton, Miss, 3
Porter, 21
Frez, 49
Green, 13
Finden, 15
* Unclassified, 287 (Not described in stock list.)
Childe and Hill, 927
Total 1,581.

Giving a majority to Childe and Hill of 273 over all the other artists put together.

By a coincidence Mr. Harrison's letter appears with mine last month, and I wish to explain why the answers to the questions he puts do not appear in this letter. Some questions in the March number by Mr. Harrison were answered by me,—and how was my information received by some few readers of this journal? Let me refer the majority of those who are interested in this matter to the following two numbers of the paper. I was charged with palpably drawing upon my imagination, with formulating astonishing theories, with insulting the memory of a dead man, and last month with untruth once more. You know, as a man of the world, sir, that we often pass by remarks of this description without notice. Life is not long enough to spend much of it in useless disputes, but such acrimonious attacks upon an utter stranger cannot be passed by in silence. These people having said that I am wrong, after a full description of various things that I know to be authentic, I have the right to turn on them and say, "You have heard my version, and say I am not telling the truth; now I demand that you prove me to be wrong or retract your words." This I now say. Messrs. "Wilkinson & Co.'s" letter does not contain one shred of information, neither does it contain a solitary proof that anything I have asserted is not true. This being the case, I fail to see why it was written at all. Until I receive some satisfactory answer to the challenge I have given above, I will not attempt to publish further information or to answer questions, for it appears to me that your correspondents are losing sight of the fact that the main question is, "Who invented dissolving views?" Whether Mr. A. Wilkinson, or any other member of the firm, painted a few views for the Polytechnic or not is a matter of the most perfect indifference to me. I have never heard the name before, but that may be because I have the misfortune to live so far from them.

EDMUND H. WILKIE,
(*Late Royal Polytechnic Institution*).

* The unclassified were miscellaneous pictures, broken sets, some pictures painted on the Continent, and a arge proportion of very inferior views. There were a w good ones amongst them, but not many.

Notes and Queries.

C. M. Allen.—Sent as requested; account is settled.

A. M. Hiddon.—Article to hand; in our next if possible. We think you can see the saturator at work either at the office of the Band of Hope Union, 60, Old Bailey, or Messrs. Phillip & Son, 32, Fleet Street.

Rev. T. Perkins.—Hope to insert next time.

A. Etchkin (Moscow).—We have asked the Blackfriars Co. to send you particulars of the Auschutz camera.

C. H. F. G.—1. The Lawson saturator does not behave in the same way as the one you tried appears to have done. 2. The light is about the same as an average mixed jet. 3. The blow-through is not nearly so intense.

Australia.—We have to acknowledge receipt of *South Australia Register* from an anomymous source in Adelaide.

Capt. Morrison.—We spoke of the camera as we found it, and the description given is correct. Of course, one cannot expect an apparatus of particularly high class at the price, but the particular camera we used worked all right, and we understood it was taken out of the ordinary stock. We cannot be responsible for the particulars set forth in dealers' advertisements.

Lantern Society Member.—With regard to query about the illumination of hymn slide, are you not confusing *illumination* with want of flatness of field? Perhaps the sides of picture fall off in definition, thus making it more difficult to read; however we shall be glad to have full particulars from you.

W. Hamilton writes: "Will you be good enough to give me your advice as to which of the attachments for regulating jets you would advise me to purchase? I notice that in your back numbers you have described some seven or eight different styles. *Answer.*—You must use your own discretion in this matter, for we make a practice of not recommending any one maker in preference to another.

Robt. Jerrard.—We cannot insert your letter *re* invention of dissolving views. Instead of throwing any light upon the subject, you merely indulge in saying hard things about certain people.

Amateur.—Use paste instead of gum for lantern slide binders.

John T. Boyde.—1. Thanks for cutting containing notice of Mr. Anderton's lantern stereoscope; you suggest that we publish a full account of this instrument. If you get this Journal for August and September last you will find particulars with sketch. 2. The saturator is a good one. 3. We shall be glad to hear from you about the new ideas you have in hand.

E. S. Goodwin (*Boston*).—You were entered for fifteen months from this issue.

Jos. Willott.—As far as we can learn there are no slides published to illustrate Scotts' works. You would have to get designs made. See advertising columns for firms making same.

Wilkinson & Co.—Too late for this issue.

John Green.—Too late for this issue.

John Nevar (*? Haven*).—Owing to the contents of your letter we cannot insert unless your full address appears.

Several communications have had to be held over for want of space.